

## ***QLI – Power Supply / Diagnostic Reports for 11-19 thru 11-25-2001***

### **Monday: Nov 19, 2001**

05:34 - QLIs in Yellow, then Blue. 1b-ps1 has the first timestamp; various quench detectors around the ring show negative timestamps for Yellow dipoles. PLCs in 11a and 9c failed and were reset.

### **Monday: 11-19, Beam Abort 11b-ps1, QLI in Yellow ring, 1b-ps1 (Actual Time 05:32:40 +1309699)**

QPA Faults b2-dhx-qp CROW, blue and yellow off

QD Alarms (1b-qd1 no data) 2b-qd2 Y1DSA9\_5VT, tq-11 [7 others contain negative tq's]

DX Heaters none fired

QdRealQuench none listed, reason is believed that MCR didn't allow time for data to collect before they reset.

Postmortems show yellow main dipole current quickly drops from 5066amps to 4615amps before T=0

Qdplots YDMC dy/dx indicates wrong SF used

Beam Loss Monitors

Quench Status not real.

Reason: Yellow Main Dipole Main power supply glitch.

### **Monday: 11-19, Beam Abort 11b-ps1, QLI in Blue ring, 11b-ps1 (Actual Time 05:32:40 +1460215)**

QPA Faults b12-dhx-qp CROW, blue and yellow off

QD Alarms (11b-qd1) B10DSA5\_A4VT, tq-24

DX Heaters none fired

QdRealQuench none listed, reason is believed that MCR didn't allow time for data to collect before they reset.

Postmortems show

Qdplots B10DSA5\_A4VT drops -0.135sec before T=0

Beam Loss Monitors high loss g10-1m.12

Quench Status **REAL QUENCH**

Reason: possibly a dirty dump, blue tripped after yellow due to b4-dho-ps cross talk. (See George Ganetis for further info)

Also, had instrumentation (HP scanner) connected to b4-dh0, y4-dh0, b4-dhx, DAC out, setpoint on buffer card and DCCT on buffer card.

### **Monday: 11-19, QLI in Blue ring 8b-ps1 (Actual Time 09:43:32 +3150032)**

QPA Faults b8-dhx-qp CROW, blue and yellow off [bo7-tq4-qp and bo7-tq5-qp also off]

QD Alarms (8b-qd1) B7QFQ2\_VT, tq-24, all others tripped with positive tq's

DX Heaters all 4b fired

QdRealQuench (8b-qd1) B7QFQ2\_vt, B7QFQ1\_VT, B7DRDO\_DO, (4b-qd1) B4DRDX\_VT, B3DRDX\_VT, (10a-qd1) B10QFQ4\_6VT and B10DSD5\_9VT

Postmortems show yellow dipole main shows current & Iref offset by about 20amps

Qdplots Vtaps above drop before T=0, B7IMQ2 (RAW) begins to drop -0.033sec before T=0

Beam Loss Monitors indicate high losses in 8 o'clock: g8-m1mx.2 and g8-m1mx.1, in 7 o'clock: b7-1m3.1, y7-1m3.1, g7-1m1, b7-1mo, y7-1mo, g7-1mx, g7-m1mx2, g7-m1mx.1 and y7-1m3.5-c

Quench Status **REAL QUENCH**

Reason: Permit went first at +3.144sec, ring was sitting at store, Beam induced

### **Monday: 11-19, QLI in Yellow ring, 8b-ps1 (Actual Time 09:43:32 +3265616)**

QPA Faults b8-dhx-qp CROW, blue and yellow off [bo7-tq4-qp and bo7-tq5-qp also off]

QD Alarms (8b-qd2) Y7DRDO\_DO, tq-23

DX Heaters all 4b fired

QdRealQuench (8b-qd1) B7QFQ2\_vt, B7QFQ1\_VT, B7DRDO\_DO, (4b-qd1) B4DRDX\_VT, B3DRDX\_VT, (10a-qd1) B10QFQ4\_6VT and B10DSD5\_9VT

Postmortems show

Qdplots Vtaps above drop before T=0, Y8/7IMDO (RAW) and BDMC (RAW) begin to drop off -0.1sec before T=0, dy/dx indicates that perhaps a wrong SF was used.

Beam Loss Monitors indicate high losses in 8 o'clock: g8-m1mx.2 and g8-m1mx.1, in 7 o'clock: b7-1m3.1, y7-1m3.1, g7-1m1, b7-1mo, y7-1mo, g7-1mx, g7-m1mx2, g7-m1mx.1 and y7-1m3.5-c

Quench Status **REAL QUENCH**

Reason: this tripped out because the blue dho had a real quench causing cross talk. Also, had instrumentation (HP scanner) connected to b4-dh0, y4-dh0, b4-dhx, DAC out, setpoint on buffer card and DCCT on buffer card.

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**Monday: 11-19, QLI in Yellow ring, 4b-time.A** (Actual Time 11:20:36 +3342956)

QPA Faults none, yellow off

QD Alarms (4b-qd2) Y4IMOND, tq-25

DX Heaters did not fire

QdRealQuench none

Postmortems indicate supplies near zero current making it difficult to read, yellow dipole main current went from zero current at -0.7sec to a negative current.

Qdplots N/A

Beam Loss Monitors N/A

Quench Status not real

Reason: work being done to the yellow main dipole, the DCCT chassis was changed.

**Monday: 11-19, Beam Abort 10a-ps3.A, QLI in Blue ring, 10a-ps3.A** (Actual Time 14:53:48 +2687523)

QPA Faults none, blue off

QD Alarms all tripped, no negative tq's

DX Heaters did not fire

QdRealQuench none shown (RUNNING)

Postmortems show that bo10-qd1-ps current dropped before T=0 at -0.13sec and that the Iref didn't drop until -0.01sec, b10-qf6-ps indicates the same. (Both share the same rack)

Qdplots indicate BDMC=473amps, sitting at Injection.

Beam Loss Monitors N/A

Quench Status not real

Reason: possible AC power failure to the rack for **bo10-qd1 and b10-qf6**. Upon checking into, found the electricians working on the main panel installing a transient suppressor to the 208v line. We checked for loose connections and were able to tighten one on the main disconnect switch by a quarter turn and found phase LI inside the rack where the power supplies are located to be slightly loose. This has occurred before and maybe these two connection could be the problem.

### **Tuesday: Nov 20, 2001**

**10:27:31** comment by...Johannes -- NO glaring differences in snapramp data for good/bad ramps, but the **y12-dh0-ps** is always showing this error signal oscillation. 0.2 amps p-p at injection.

**13:34:34** Beam Abort, 8b-ps1 dropped {Loss Monitor 1} [Sequencer](#)

**Tuesday: 11-20, Beam Abort 10a-ps3.A, QLI in Yellow ring, 10a-ps3.A** (Actual Time 13:38:16 +2987715)

QPA Faults none, yellow off

QD Alarms all tripped with no negative tq's.

DX Heaters did not fire

QdRealQuench none listed

Postmortems show nothing unusual

Qdplots indicate ramping down from maximum energy to injection

Beam Loss Monitors show good at all 10dmp monitors, y8-lm3.1 indicate slightly high at 3110 rads/hr..

Quench Status not real

Reason: unexplained trip at the moment, able to reset could be a possible loose K-lock connector.

## ***QLI – Power Supply / Diagnostic Reports for 11-19 thru 11-25-2001***

### **Wednesday: Nov 21, 2001**

QLI in Blue and Yellow rings. Inputs to 7b-ps1 show identical timestamps. Cryo reports no interlocks; loss monitors and power supplies do not indicate any problems from PM Viewer. Blue gap cleaning was in progress but no changes were being made at the time of the QLI.

#### **Wednesday: 11-21, Beam Abort 7b-ps1, QLI in Blue ring, 7b-ps1 (Actual Time 02:55:28 +1714646)**

QPA Faults b8-dhx-qp CROW, blue and yellow off

QD Alarms blue tripped, no negative tq's

DX Heaters did not fire

QdRealQuench none listed

Postmortems show b8-dho-ps go from +90 amps to -450amps after T=0, saw this on other dho's. Checked with Don and this could be normal.

Qdplots ring at top energy, BDMC at 5046amps, BQMC at 4593amps, both dropped at -0.01674sec

Beam Loss Monitors indicate a loss at y7-1m3.2-c (1725 rads/hr), normal dump at 10.

Quench Status not real

Reason: could be a possible permit module as this has occurred once before. Will look further into when the next maintenance day is scheduled.

#### **Wednesday: 11-21, Beam Abort 7b-ps1, QLI in Yellow ring, 7b-ps1 (Actual Time 02:55:28 +1714646)**

QPA Faults b8-dhx-qp CROW, blue and yellow off

QD Alarms no negative tq's, only 8 indicated values.

DX Heaters did not fire

QdRealQuench none listed

Postmortems nothing unusual, some plots didn't show voltage and error signals.

Qdplots ring at top energy, YDMC at 5046amps, YQMC at 4605amps, both dropped at -0.01679sec

Beam Loss Monitors indicate a loss at y7-1m3.2-c (1725 rads/hr), normal dump at 10.

Quench Status not real

Reason: could be a possible permit module as this has occurred once before. Will look further into when the next maintenance day is scheduled.

04:51:48- RHIC acceleration ramp started, ramp id ramp21\_1006313352 [Sequencer](#)

0456: QLI in Blue, then Yellow rings while ramping. It appears 2 correctors tripped off in Sector 3 which triggered a quench due to beam loss. 0600: p^ running; we have switched back until Cryo gives clearance to ramp.

#### **Wednesday: 11-21, Beam Abort , 10a-ps3.A, QLI in Blue ring, 3b-ps1 (Actual Time 04:55:16 +3436183)**

QPA Faults b4-dhx-qp CROW, blue and yellow off

QD Alarms (3b-qd1) B3DSA3\_A2VT tq-24

DX Heaters did not fire

QdRealQuench (3b-qd1) B3DSA3\_A2VT and B3DSA2\_A1VT

Postmortems indicated that b4-dho-ps went from +100amps to -450amps after T=0 of the trip

Qdplots ramping up to full energy, it looks like maybe the ramp was too fast but Physicist claim the quench was because two correctors tripping off during the ramp.

Beam Loss Monitors show high losses 3680 rads/hr at g3-1m14, multiple high dumps at 10 dmp's look normal

Quench Status **REAL QUENCH**

Reason: 05:08:37 comment by...gjm -- looks like **bo3-th16 and bo3-tv15 tripped**, causing the QLI.

Technician checked Bo3-th16 and bo3-tv15 on snapshot and it indicated that the waveform generators seemed to have told them to drop off. One control card operates both supplies so it may be a possible controls problem. Since they reset okay, no further action was taken.

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**Wednesday: 11-21, Beam Abort , 10a-ps3.A, QLI in Yellow ring, 10a-ps3.A (Actual Time 04:55:16 +3436239)**

QPA Faults bi9-dhx-qp CROW, blue and yellow off

QD Alarms no negative tq's, only 7 channels indicated readings.

DX Heaters did not fire

QdRealQuench (3b-qd1) B3DSA3\_A2VT and B3DSA2\_A1VT

Postmortems show nothing unusual

Qdplots ramping up to full energy

Beam Loss Monitors show high losses 3680 rads/hr at g3-1m14, multiple high dumps at 10 dmp's look normal

Quench Status not real

Reason: tripped at same time as above, possible cross talk or residue beam loss.

**Wednesday: 11-21, Beam Abort 10a-ps3.B, QLI in Blue ring, 10a-ps3.A (Actual Time 06:25:08 +1528827)**

QPA Faults none, all blue tripped

QD Alarms none listed, (RUNNING)

DX Heaters did not fire

QdRealQuench none listed, all running

Postmortems power supplies near zero, nothing unusual, mains look okay

Qdplots indicate BDMC=50amps, sitting at Park.

Beam Loss Monitors N/A

Quench Status not real

Reason: MCR re-ran the recovery program when the blue link was already up.

**Wednesday: 11-21, Beam Abort 4b-time.B, QLI in Blue ring, 4b-time.B (Actual Time 07:47:04 +2421185)**

QPA Faults b4-dhx-qp CROW, blue off

QD Alarms all tripped, no negative tq's

DX Heaters did not fire

QdRealQuench none listed

Postmortems ramping up, b-dmain-ps shows the voltage drop from 170 to 145 at -0.385sec before T=zero. This could be the switch over from ramping to flatop as the supply didn't trip until after T=zero.

Qdplots B3IMQ6 jumps up at 3489amps -0.0335sec while BQMC drops at 3172amps -0.0165sec before T=0.

Beam Loss Monitors looks normal at 10.

Quench Status not real

Reason: all appears normal. With no other indications at this time, George believes it to be a possible loose K-lock connector with the main power supply or some other power supply. Will have to investigate next maintenance period.

**Wednesday: 11-21, Beam Abort 2b-ps1, QLI in Blue ring, 2b-ps1 (Actual Time 13:52:52 +1681305)**

QPA Faults b2-dhx-qp CROW, blue off

QD Alarms (2b-qd1) B2DRDO\_DO tq-23, all others tripped positive

DX Heaters all 2b FIRED

QdRealQuench (2b-qd1) B2DRDX\_VT and B1DRDX\_VT

Postmortems indicate that b2-dho-ps current, Iref, voltage and error all dropped out -0.032sec before T=0

Qdplots B2/1IMDO (raw) shot upwards from 4859amps T-0.03346sec to 5797amps. B2DRDX\_VT and B1DRDX\_VT rise after T=zero.

Beam Loss Monitors indicate high but normal loss at 10

Quench Status **REAL QUENCH**

Reason: the buffer card was accidentally pulled from the power supply when setting up instrumentation. Ring was sitting at full energy.

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1717: Blue Ring quench link interlocked at park; permit.4b-time.B was pulled.

**Wednesday: 11-21, Beam Abort 4b-time.B, QLI in Blue ring, 4b-time.B** (Actual Time 17:17:40+ 1519454)

QPA Faults none, blue off

QD Alarms none, all running

DX Heaters did not fire

QdRealQuench none listed

Postmortems, while ramping from Injection down to Park, the blue dipole main power supply ramp current spiked up from 71amps to 1810amps at -1.6015sec. Indications were also seen on the b4-dx (-1.57sec) and b4-dho (1.56sec) power supplies.

Qdplots BDMC approximately at 71amps.N/A

Beam Loss Monitors N/A

Quench Status not real

Reason: Unexplained Blue Dipole Main waveform. Georges notes that the Ramp Power Supply went to a large negative voltage, will continue to monitor.

2055: Yellow Ring Quench Link interlocked at flattop; permit.1b-ps1 was pulled

**Wednesday: 11-21, Beam Abort 1b-ps1, QLI in Yellow ring, 1b-ps1** (Actual Time 20:54:28 +3963930)

QPA Faults none, yellow off

QD Alarms (1b-qd1) Y12DSA5\_A4VT, Tq-23 (All others indicate negative Tq's also)

DX Heaters did not fire

QdRealQuench (Multiple throughout the ring) Looking at: (1b-qd1) Y12DSA5\_A4VT, Y12DSA4\_A3VT, Y1DSA3\_A2VT, Y1DSA2\_A1VT

Postmortems indicate that the yellow main dipole power supply current began to drop off at approximately -0.032 while the Iref remained.

Qdplots yellow main dipole sitting at top energy of 5046amps. After T=0, current pulses up then down several times as it decays towards zero. All voltage taps listed above for 1b-qd1 drop negative at -0.0167sec.

Beam Loss Monitors show a high loss of 3335 rads/hr at g10-1m12, looked at several other pages and they appeared low.

Quench Status not real.

Reason: While sitting at top energy, the yellow main dipole power supply current dropped off.

**Thursday, Nov. 22, 2001**

**HAPPY THANKSGIVING**

2050: End of Store; Blue ring quench link interlocked; permit.11b-ps1 was pulled

**Thursday: 11-22, Beam Abort 11b-ps1, QLI in Blue ring, 11b-ps1** (Actual Time 20:50:48 +1997106)

QPA Faults blue off with b12-dhx-qp indicating CROW

QD Alarms (11b-qd1) B10DSA5\_A4VT, Tq-24 all others tripped with positive Tq's.

DX Heaters did not fire

QdRealQuench (11b-qd1) B10DSA5\_A4VT

Postmortems 1012A looks okay and so do the main power supplies

Qdplots blue main power supply sitting at top energy, normal drop to zero current after trip. V-tap at 11b-qd1 drops negative approx -0.18345sec. Other V-taps in the area appear normal.

Beam Loss Monitors b11-1m3.1 high at 2606 rads/hr while the 10BLM indicate high at the blue dumps but especially g10-1m12 which is farther away, indicating over 5000 rads/hr.

Quench Status **REAL QUENCH**

Reason: Possible Dirty Dump since it was at the end of a store

***QLI – Power Supply / Diagnostic Reports for 11-19 thru 11-25-2001***

**Friday, Nov 23, 2001**

No reported problems

**Saturday, Nov. 24, 2001**

0210: **yi2-qs3-ps** (Corrector) has tripped and taken the beam with it, no reported quenches, the store was dumped

**Sunday, Nov. 25, 2001**

**06:54:13** The **yi2-qs3-ps** is off with a range error. Reset/Stby/On got it back on. [TJS](#) (Possible this was still off from Saturday and not discovered until now)

**17:21:50** Physics Running. A RHIC store has been clogged at injection energy.

**bo3-qgt-ps** (gamma-t) tripped during the fill but MCR continues since the lifetime is still normal. (Card was changed during the next Maintenance period)